

**WHAT IS CLAIMED IS:**

1. A light source, comprising:
  - a light-emitting tube having a light-emitting portion that emits a light beam by an
  - 5 electric discharge between electrodes and sealing portions provided on both sides of the light-emitting portion;
  - a reflector that reflects the light beam emitted by the light-emitting portion forward after aligning in a predetermined direction;
  - a cover covering a light-irradiation opening of the reflector, the cover having an
  - 10 opening for irradiating the light beam reflected by the reflector and a heat-radiation fin formed on the outside thereof, the cover being made of a heat-conductive material that absorbs a heat generated by the light-emitting tube and conducts the absorbed heat to the heat-radiation fin; and
  - a transparent member that covers the opening of the cover.
- 15 2. The light source according to claim 1,
  - wherein the reflector is an ellipsoidal reflector having an ellipsoidal reflecting surface,
  - wherein a sub-reflection mirror that covers approximately half of the front side of
  - 20 the light emitting portion is provided in the light-emitting tube, the light-emitting tube being projected from a light-irradiation opening of the ellipsoidal reflector.
3. The light source according to claim 2, the cover comprising an approximately
- 25 conic cylindrical heat absorber that is tapered from the light-irradiation opening of the reflector in a direction for the light to be irradiated.
4. The light source according to claim 3, wherein the heat-radiation fin is a plate provided on the outside of the heat-absorber extending in a direction orthogonal to the optical axis of the reflector.

5. The light source according to claim 2, wherein the transparent member is a parallelizing lens that parallelizes a convergent light irradiated by the ellipsoidal reflector.
- 5 6. The light source according to claim 5, wherein the parallelizing lens is a parallelizing concave lens having thickness of 2 mm or more along a direction for the light to be transmitted.
7. The light source according to claim 5, wherein the parallelizing lens is a  
10 parallelizing concave lens having an aspherical concave surface on a light-incident side thereof and a flat surface on a light-irradiation side thereof.
8. The light source according to claim 7, wherein the aspherical surface is a hyperboloid.
- 15 9. The light source according to claim 7, wherein an ultraviolet protection film that prevents transmission of ultraviolet is formed on the light-irradiation side of the parallelizing concave lens.
- 20 10. The light source according to claim 1, wherein the cover is made of ceramics and a hole for inserting an electrode-connecting wire of the light-emitting tube is formed on the cover.
11. A projector that modulates a light beam irradiated by a light source in accordance  
25 with image information to form an optical image and projects the optical image in an enlarged manner, comprising:
  - a light source according to claim 1.
12. The projector according to claim 11, further comprising a cooling device that

cools the heat-radiation fin formed on the cover of the light source.

13. The light source according to claim 11,  
wherein the reflector is an ellipsoidal reflector having an ellipsoidal reflecting  
5 surface,  
wherein a sub-reflection mirror that covers approximately half of the front side of  
the light emitting portion is provided in the light-emitting tube, the light-emitting tube  
being projected from a light-irradiation opening of the ellipsoidal reflector.
- 10 14. The light source according to claim 13, the cover comprising an approximately  
conic cylindrical heat absorber that is tapered from the light-irradiation opening of the  
reflector in a direction for the light to be irradiated.
- 15 15. The light source according to claim 14, wherein the heat-radiation fin is a plate  
provided on the outside of the heat-absorber extending in a direction orthogonal to the  
optical axis of the reflector.
16. The light source according to claim 11, wherein the transparent member is a  
parallelizing lens that parallelizes a convergent light irradiated by the ellipsoidal reflector.
- 20 17. The light source according to claim 16, wherein the parallelizing lens is a  
parallelizing concave lens having thickness of 2 mm or more along a direction for the light  
to be transmitted.
- 25 18. The light source according to claim 16, wherein the parallelizing lens is a  
parallelizing concave lens having an aspherical concave surface on a light-incident side  
thereof and a flat surface on a light-irradiation side thereof.
19. The light source according to claim 18, wherein the aspherical surface is a

hyperboloid.

20. The light source according to claim 18, wherein an ultraviolet protection film that prevents transmission of ultraviolet is formed on the light-irradiation side of the parallelizing concave lens.

21. The light source according to claim 11, wherein the cover is made of ceramics and a hole for inserting an electrode-connecting wire of the light-emitting tube is formed on the cover.